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ABSTRACT

This report identifies and analyzes forces in the schooling process that create delays in completions, that limit attainment, that foster the drop out rate and that reduce chances for higher education among Puerto Ricns in metropolitan areas in the U.S., as revealed by statistics from the 1970 census. In this study, an explanatory set of social and economic variables were related to educational measures for preparing and evaluating influences stemming from the school system, the Puerto Rican community and the parents. Multivariate correlations and the use of path analysis provided a basis for conclusions, as well as observations, regarding patterns of variation among the eleven metropolitan areas selected for intensive research. The findings showed that as of 1970 little or no progress had taken place in the schooling of Puerto Rican young adults when compared with the parent generation's school attainment and the attainment of other minority groups. Nationally, about 60% of Puerto Rican youth enumerated in the 1970 Census had left the educational system before high school graduation. An additional 25% graduated, but with some delay in the usual schedule for completion, indicating problems even when school was successfully completed. In varying degrees the delay/drop out pattern was found in nine out of the eleven metropolitan areas, some of which represent more than a single city. It was concluded that some of the social factors identified as influences on school problems could be modified by short-term changes in organization, but others would require redirection in the social structure that has ascribed to Puerto Ricans a minority and dependent role in the internal colonial system. (Author/AM)

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Social Factors in Educational Attainment Among Puerto Ricans in U.S. Metropolitan Areas, 1970

Puerto Ricans and Education
Report Number 1
September 1976

U.S. DEPARTMENT OF HEALTH
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SOCIAL FACTORS IN EDUCATIONAL ATTAINMENT AMONG PUERTO RICANS IN U.S. METROPOLITAN AREAS, 1970

The First In a Series of Reports
On Puerto Ricans and Education

UD016687

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New York, New York

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stimulated the organization to inquire and to act. The specific contents and opinions expressed in this report are solely the responsibility of the authors. A preliminary version of this report was presented as a paper at the Population Association of America annual meetings, Montreal, Quebec, May 1, 1976.

Foreword

Throughout the past fifteen years, Aspira has counseled more than twenty-five thousand students and, with Aspira's aid, ten thousand students have graduated from post-secondary institutions. The quest for better educational opportunities for minority youth, coupled with the institutional goal of developing responsible and committed leadership for Hispanic communities, has remained Aspira's central mission.

Recently, a new priority for Aspira has emerged. Flowing directly from Aspira's programmatic thrust, this new priority represents a long felt need—the need for systematic research that will provide convincing information to funding sources about the precarious educational situation facing Hispanic youth and that will assist political leaders, administrators, educators, social workers and others in decision-making roles in taking action to correct the dismal picture.

In the following monograph, Dr. Hernández and his colleagues do not intend to offer specific solutions; rather, they share with us significant scholarly knowledge on a diversity of educational situations that could have practical implications for the development of social and educational policy. Furthermore, the study demonstrates how the wealth of existing data on Puerto Ricans can be organized and interpreted to shed new light on the social circumstances of Puerto Ricans.

This study and other recent experience indicate there are issues and deficiencies that require immediate attention. Some of them are as follows:

- Puerto Ricans have a drop out rate from the public schools of the nation's major urban areas that varies, mostly, between 55 and 80 percent.

- For many Puerto Rican students academic delay increases as they move through the schooling process.

- Puerto Rican students attend schools that are more segregated now than they were a decade ago.

- Very little is known as to the academic and psychological impact on the learner of the many and still proliferating versions of bilingual/bicultural education.

If the import of these deficiencies is to be understood and remedies implemented, then they must be shared and discussed, not only as a Puerto Rican concern, but as a concern of American society. The following work opens the way to such a social dialogue.

Mario A. Anglada
National Executive Director
Aspira of America, Inc.

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Introduction to the Series

A SERIES OF REPORTS ON PUERTO RICANS AND EDUCATION

The new Aspira of America series on Puerto Ricans and Education is intended as a forum in which a wide variety of educational issues and concerns can be addressed from a Puerto Rican research perspective. The orientation of the series will be primarily national and multi-purposed. It will be addressed to policy makers, school administrators, various professional groups, other educational researchers, as well as to Puerto Rican/Hispanic parent groups involved in improving the education of their children. Present plans are for an annual publication that will be based primarily on findings from on-going Aspira research projects.

Aspira's first project, The Statistical Profile Study, is funded by the Ford Foundation. The basic goals of the Study are to identify the socio-demographic dimensions of the Puerto Rican student population throughout the country and to develop an initial understanding of their situations, characteristics and needs, with special reference to those cities where a major portion of the Puerto Rican people reside. With the cooperation of the school officials in these cities, there are plans to publish as the second report in this series a national educational profile of Puerto Ricans based on public school data, and providing an initial model for periodic monitoring and assessment of learning conditions.

The study reported here identifies and analyzes forces in the schooling process that create delays in completion, limit attainment, foster the drop out and reduce chances for higher education among Puerto Ricans in the United States as revealed by statistics from the 1970 census. An explanatory set of social and economic variables have been related to educational measures for preparing and evaluating influences stemming from the school system, the Puerto

Rican community and the parental generation. Multivariate correlations and the use of path analysis provided a basis for conclusions, as well as observations regarding patterns of variation among the eleven metropolitan areas selected for intensive research.

The educational problems confronting Puerto Ricans in the United States are inextricably interwoven with the larger and more complicated situation of societal discrimination, poverty and low status in which the overwhelming majority of Puerto Ricans find themselves. To analyze and propose solutions for the problems in and surrounding the schooling process requires an ongoing, inter-disciplinary approach developed by a group of researchers and community workers with institutional support. It is with the intention of becoming a significant partner in a broad-based and policy-oriented approach that Aspira of América, Inc. has entered the field of educational research.

RECOMMENDED AREAS FOR FURTHER STUDY

The field of educational research as far as it concerns Puerto Ricans is fairly barren. Much research, reflection and action are needed. The reader will find below some educational issues and problems that Aspira of America considers prime topics for discussion and research.

Recent research experience has demonstrated the necessity to go beyond the variety of studies, reports and investigations that describe the general educational situation and problems confronting Puerto Ricans in different cities,[1] to a coordinated series of national studies and analyses addressed to specific sets of common variables within different geographic locations. The needs are for comparative studies of both inter-locational differences and similarities among Puerto Ricans as well as intra-locational differences and similarities between Puerto Ricans and other ethnic and racial groups.

The subject of school segregation illustrates the necessity for national, comparative studies. The Civil Rights Office of the Department of Health, Education and Welfare has released the first statistics compiled on Hispanic school segregation in the country. The following table displays the proportion of black and Hispanic children in predominantly (defined as 70% or more) minority public schools in the nation and the Northeast, where Puerto Ricans are the major Hispanic group, for 1970 and 1974:

Proportion of Minorities in Public Schools

	BLACK		HISPANIC	
	1970	1974	1970	1974
National	70.6%	66.8%	64%	67.4%
Northeast	78.7%	81.0%	84.2%	84.2%

Source: HEW Office for Civil Rights, May 1976.[2]

According to a press release by Senators Brooke and Javits on this subject, Hispanic children were "more likely than Blacks to be attending predominantly minority schools. Such segregation is stable or growing in every region."[3] Gary Orfield, who is analyzing these data at the Brookings Institute, reports that in New York City, which contains over 60% of the national Puerto Rican population, the proportion of Hispanic, predominantly Puerto Rican, children in intensely segregated schools (with 90 to 100% minority enrollment) climbed from 57.5% in 1970 to 67% in 1973.[4]

These statistical trends, combined with the young age composition of the Hispanic population, portend further growth in school enrollment and development of bilingual/bicultural communities segregated from other minorities and the majority. Brooke and Javits say "we may face not merely a division into separate societies, but crystallization of a rigid

three-way division in our urban schools." What are the policy implications of these trends for Hispanic children and for American society? For example, how do the desegregation efforts being implemented in various cities affect Hispanic students or the bilingual programs that may also exist or remain to be developed? Hispanic educators and community groups throughout the country are very concerned about the dismantling or forestalling of bilingual/bicultural programs because of desegregation efforts.[5] Conversely, how does school segregation affect the worldview and aspirations of Hispanic children? Does segregation have positive functions that could be worked to the students' advantage, while the negative aspects are reduced through desegregation?

Part of the answers to these questions would be forthcoming in the search for the underlying causes of the increasing segregation of Hispanic communities. Is it the active choice of these communities for cultural and linguistic reasons? Is it the result of economic, social and residential discrimination by the larger society? Or is it a combination of external and internal group factors? Are there different degrees of segregation among the different Hispanic groups? Or, within one group such as the Puerto Rican, from one community to another? Does the barrio, for example, retain people who are socially and economically mobile, or is it abandoned, once a certain threshold of prosperity is reached? These are all fundamental research questions. The answers will shape questions of public and educational policy.

There are educational policy issues requiring clarification through further basic social research on specific topics such as the following:

1. The field of bilingual/bicultural education and procedural requirements for obtaining and maintaining federal and local funding have spawned a large array of

studies, surveys; program descriptions and evaluations. Research is now needed to systematically analyze these program evaluations, synthesize a set of findings from them, arrive at ways in which conclusive information can be obtained, and exert a return influence on the data gathering process.

2. In terms of the controversy associated with the Aspira Consent Decree in New York City and the significance of its scope and aim, this legal precedent deserves a full historical policy study, research concerning contemporary issues in the actual implementation, and projections for the immediate and medium-range future.

3. The few sound studies of the determinants of either educational attainment[6] or achievement[7] among Puerto Ricans need to be updated and supplemented. Future studies should include aspects of the schooling process of particular importance for Puerto Ricans, so as to properly identify influential factors in student performance, that is, beyond those readily apparent.

4. Although there have been some studies[8] of the New York and Chicago college student populations that included Puerto Ricans, a national assessment of how Puerto Ricans have fared in higher education is needed. A parallel study of human resources at the college or graduate degree levels will help clarify those skill and professional fields in which Puerto Ricans are most and least represented, and how the present group of new professionals differs, if at all, from the parent generation.

5. An assessment of the impact of the City University of New York's Open Admissions Years (1970-1975) on

Puerto Ricans as well as the City's other ethnic and racial groups would now be useful, particularly as compared with other universities having open admissions and sizeable Puerto Rican enrollments, and with alternative institutions of higher learning, as well.

6. The findings of the study presented in this volume also raise some questions that cannot be answered without further research. For example, if the same research design were applied to data for the major ethnic and racial groups within the eleven metropolitan areas studied would there be group differences in their correlations and path coefficients as compared to those presented here for Puerto Ricans? Would the same model, applied to Puerto Rican students in different areas of the same cities, yield different results? Also, are there particular school system policies that might account for some of the variability found in the different patterns of delay and dropout among metropolitan areas? Can we identify school policies that facilitate or hinder Puerto Rican educational attainment rates?

The suggestions just made by no means are inclusive of all the educational research needs of the Puerto Rican community; we mention these topics aiming only at providing an initial contribution to the development of a research agenda for those researchers willing and prepared to tackle these problems in a concerted and sustained manner in cooperation with parents, students, teachers, administrators, community and professional leaders. Moreover, ways must be developed for disseminating and utilizing the knowledge derived from this research. In this regard a clearinghouse and technical assistance unit would be valuable assets to parent groups and school administrators.

The need for Puerto Ricans to assume leadership in these endeavors should also be clear. For whatever reasons there has been little interest shown in the educational issues related to Puerto Ricans, nor in Puerto Ricans involved in educational issues. For example, the authors of the Equality of Educational Opportunity Report (The Coleman Report) documented the devastating educational circumstances and outcomes of schooling for Puerto Ricans in 1966. Yet these results did not lead to wide interest, action or even further studies, just as the observations and ideas of Puerto Rican educators, who may often reach the same conclusions in a non-scientific manner, but are rarely listened to by the general "informed" public or public decision makers. In the absence of a sense of concern (or even interest) among non-Puerto Ricans, Puerto Ricans themselves must take the initiative and work toward some degree of participation and self-determination in the educational process.

Therefore, Aspira of America, Inc., sincerely hopes this series of reports will stimulate an appreciation and concern within various circles for the needs of the Puerto Rican school child. We hope that in some way you will join us and the thousands of Puerto Rican parents throughout the country who struggle to improve the schooling of their children.

Rafael Valdivieso
Research Coordinator
Statistical Profile Study

Notes to the Introduction

1. The following reports are listed alphabetically by city:

   Issues of Concern to Puerto Ricans In Boston and Springfield, A Report of the Massachusetts State Advisory Committee to the United States Commission on Civil Rights (Washington, D.C.: U.S. Commission on Civil Rights, February 1972).

   The Way We Go To School: The Exclusion of Children In Boston, A Report by the Task Force on Children Out of School (Boston: Beacon Press, 1971).

   El Boricua: The Puerto Rican Community in Bridgeport and New Haven, A Report of the Connecticut State Advisory Committee to the United States Commission on Civil Rights (Washington, D.C.: U.S. Commission on Civil Rights, January 1973).

   Hilda Hidalgo, "The Puerto Ricans of Newark, New Jersey (Aqui se Habla Espanol)" (Newark, New Jersey: Aspira of New Jersey, 1971).

   Bilingual/Bicultural Education – A Privilege or a Right?, A Report of the Illinois State Advisory Committee to the United States Commission on Civil Rights (Washington, D.C.: U.S. Commission on Civil Rights, May 1974).

   Puerto Ricans and Other Hispanics in New York City's Public Schools and Universities: A Survey (New York: Migration Division, Commonwealth of Puerto Rico, December 1975).

   Piri Thomas. "Puerto Ricans in the Promised Land," *Civil Rights Digest* Vol. 6, Number 2.

   In Search of a Better Life: The Education and Housing Problems of Puerto Ricans in Philadelphia, A Report of The Pennsylvania State Advisory Committee to the United States Commission on Civil Rights (Washington, D.C., January 1974).

2. "HEW Figures Show School Segregation Increasing in Northeast; South and Border States Show Greatest Gains in Integration," A press release issued by Senators Brooke (R-Mass) and Javits (R-N.Y.), June 20, 1976, from tables 1 and 3.

3. *Ibid.*, p. 2.

4. Information obtained in telephone interview with Dr. Orfield.

5. See *Bilingual-Bicultural Education: A Handbook for Attorneys And Community Workers* (Cambridge, Mass.: Center for Law and Education, December 1975), Section V.

6. Isidro Lucas, "Puerto Rican Dropouts in Chicago: Numbers and Motivation," Final Report to the U.S. Office of Education, Department of Health, Education and Welfare (Washington, D.C., 1971) and Victor G. Alicea and Julie Mathis. "Determinants of Educational Attainment Among Puerto Rican Youth in the United States," (Universidad Boricua, Washington, D.C., 1975).

7. James S. Coleman, Ernest Q. Campbell, Carol J. Hobson, James McPartland, Alexander M. Mood, Frederic Weinfield and Robert L. York, *Equality of Educational Opportunity* (Washington, D.C.: Government Printing Office, 1966) and William C. Kleiber, *Academic Achievement and Aspects of Acculturation Among Puerto Rican Male Community College Students* (Ph.D. dissertation, New York University, 1974).

8. For example, see Robert Birnbaum and Joseph Goldman, *The Graduates: A Follow-Up Study of New York City High School Graduates of 1970* (New York: Center for Social Research, The City University of New York, May 1971).

SOCIAL FACTORS IN EDUCATIONAL ATTAINMENT AMONG PUERTO RICANS IN U.S. METROPOLITAN AREAS, 1970

1. Educational Attainment Among Puerto Ricans

In 1970 scarcely two percent of continental Puerto Ricans between ages 25 and 44 had completed a college education, one of the most depressed rates of higher learning attainment among major segments of the United States population.[1] Although the total number of college graduates had increased in step with the Puerto Rican population's growth, the percentage showed no improvement when compared with 1960 and 1950 levels. In terms of community strength, this meant a very limited potential for occupational advancement and scarcity in skilled human resources.

Since a high school diploma remains a requirement for college enrollment, limited access to higher education among Puerto Ricans can be partly explained by similar problems at the secondary level. In 1970 only one in every four Puerto Rican adults had completed high school, which meant that three-quarters of this population was not directly eligible for higher education.

According to the 1950, 1960, and 1970 censuses, half or more of continental Puerto Ricans age 25 to 44 had never

attended high school; in most cases their formal education ended before elementary school graduation. For this period the statistics also show a shift from elementary school completion to partial high school attainment, indicating that the drop out trend continued in an upward direction with a major portion stopping short of high school graduation and college eligibility. By 1970 more than a quarter of continental Puerto Rican adults were high school drop outs, slightly larger than the proportion with a high school degree.

Aside from creating a bottleneck toward higher education, the recent development of a high school drop out pattern suggests a variety of serious implications. First, it tends to support a distorted picture of progress when the "average" or median years of school completed is used as an educational indicator. From 1950 to 1970 the median school attainment for continental Puerto Ricans advanced nearly two years. But this was due primarily to a shift from elementary school attainment to partial high school, and not to an increase in the high school completion rate, which remained proportionately the same.

Considered socially, the continued drop out reflects estrangement between the Puerto Rican community and the school system, and especially discouragement among Puerto Rican children and adolescents—a malaise stemming from basic people/institutional problems and disparities. Throughout the past quarter century Puerto Ricans of all ages have experienced the colonizing effects of being labeled "minority," already history among other nonEuropean groups incorporated into the United States originally in an involuntary manner. But the impact has been greatest among the very young, those least familiar with Puerto Rico and their historical identity, and most likely to experience the effects of socialization for minority status. Assumed to be on the continent as "cheap labor," Puerto Ricans are not generally expected by United States society to attain high educational

levels, nor even aspire to the social mobility typical of the "American Dream." The jobs more frequently available to Puerto Ricans are typically at levels where a high school degree makes little difference or actually poses a disadvantage: food service kitchen help; light factory assembly, packing and wrapping; janitor's and general cleaning work; warehouse and stockroom handling; construction labor and carpenter's assistance; private household service and "attendants" in parking, recreation places, hospitals and other public places. Under similar conditions, other indigenous minority persons have had greater success in job security and income as high school drop outs than as graduates, and often resort to dropping out as a survival strategy when the likelihood of breaking out of the exploitation system is perceived as low.[2]

The American school system has generally upheld a success model requiring Puerto Rican children and adolescents to surmount their cultural "deprivations," adapt to the mainstream manner of learning, and prepare for the white Anglo job market—instead of adapting the schooling process to the realities of their social restrictions and special needs for reaching a situation where the mainstream educational system and the white, Anglo job market become meaningful options.

The contemporary debate on bilingual education exemplifies the mismatching of community and school system. Perhaps no issue has elicited such an enthusiastic and solid response from average citizens during the recent history of Spanish origin groups in the United States. The ideal solution plainly centers on the bilingual-bicultural model that coordinates both Anglo and Hispanic elements in an integrated learning system aimed at achieving the fullest development of human resources, as well as (and as motivated and enhanced by) a positive self-image. But in reality many bilingual programs are reduced to a remedial project directed toward quickly improving English language abilities among Spanish

dominant students only, with little or no attention to Hispanic cultural content, or even Spanish language maintenance. While some bilingual programs clearly do not pertain to this minimal level, it typifies the recurrent situation in which parents or community groups have resorted to litigation and court action, in their efforts to obtain some recognition of problems and attention from the school system.

By now it is generally known that less controversial difficulties affecting the daily lives of many Puerto Rican children make education unappealing and unrelated to their experience outside school. Puerto Rican teachers (or even those with some understanding of Puerto Ricans) are the exception; learning materials make scant reference to things Puerto Rican and say little about the world in which students must struggle as Puerto Ricans. Among other mechanisms promoting low achievement, discouragement and the eventual drop out, Puerto Rican children are typically routed away from the college preparatory track and even middle-level paths to success by their instructors, counselors and the pervasive school environment.[3]

Perhaps the mechanism most conducive to dropping out is the widespread practice of leaving Puerto Rican children back a grade or more, when they are perceived by school authorities as having a language, learning or behavioral "problem," or some combination of these elements. A recent study completed by Universidad Boricua (based on interviews with about 500 Puerto Rican students and parents in New York City, Philadelphia and Vineland, New Jersey) uncovered some of the human aspects behind the statistics on delayed education. Students held back one or more years were of course older in terms of physiological and emotional development than other (usually nonPuerto Rican) students at their grade level. Defined by the social environment as problems, the left-backs found little encouragement to perform as model students. Instead, they demonstrated

their edge over others in non-educational ways, strategies against boredom and depression that often led to truancy and other inter personal problems facilitating the drop out as a logical and mutually satisfactory solution.[4]

National data on delayed education among Puerto Ricans present a very disturbing picture. By relating enrollment levels to the age of students as recorded in the 1970 Census publications, some notion is gained of relative levels. Among Puerto Rican students 14 to 17 years old, approximately 40 percent were still in elementary grades–compared with 17 percent among persons enrolled at equivalent ages in the total United States population. If a delayed student is defined as someone enrolled at least one year behind the progression beginning with first grade elementary at age seven and leading to high school graduation at eighteen, a higher rate–about 47 percent–is obtained. This compares with estimates of 45 percent for Native Americans; 40 percent for blacks; 37 percent for Mexican Americans, and is more than twice the estimate of 23 percent for the majority or white non-Spanish origin population.[5] But the full delay factor is plainly greater, since these figures do not include persons having already dropped out from school, and at the 14 to 17 age level drop outs are twice as frequent among Puerto Ricans than in the total American population.

It is also clear that delayed education is not a problem limited to children born in Puerto Rico. Students 14 to 17 years old who were born in the United States (and therefore supposedly more assimilated) showed 32 percent still in elementary grades and 41 percent at least one year behind the usual schedule, not far from the national average for all Puerto Ricans. Regardless of birthplace, Puerto Rican students living in New York City fared better than those located elsewhere, but even in this case the delay factor was significantly above levels for the total and nonPuerto Rican population. Since more than half of the continental Puerto

Rican population live in New York City, this means that generally delayed schooling is much more frequent in other places, including many cities where the school system is hardly aware of the problem.

Another disturbing aspect is that apparently the delay is not always a one-time occurrence with limited consequences for educational attainment at later enrollment levels and older ages. Instead, available evidence shows that some students are left back more than once and that being left back has a "ripple" effect on the school situation of young adults. In 1970 among Puerto Ricans age 18 to 24 who were enrolled—the usual life cycle stage for college—more than 60 percent were still in high school, compared with 9 percent in the total United States student population at equivalent ages. Moreover, in this instance the delay rate for Puerto Ricans born in the United States (56 percent) and rates for other major categories were again close enough to the average for all Puerto Ricans as to rule out any clear sign of improvement.

Accumulated school problems have therefore taken a severe toll for many Puerto Rican young adults—as employment, marriage, military service and family responsibilities enter their personal horizon, while still finishing high school. Faced with circumstances pressing them to work and support themselves and others, or with appealing alternatives to an unpleasant experience in schooling, dropping out represents a reasonable solution. Recent inflation and unemployment problems affecting the parent generation of Puerto Rican manual workers has probably strengthened the reasons for late adolescent children to quit school and seek a job enabling the family to maintain a previously modest lifestyle.

The Universidad Boricua study previously mentioned concluded that social and economic differences between high school stay ins and drop outs were not significant. Instead, both groups had about the same (low) income

background, and "factors traditionally asserted by school administrators as influencing attrition such as: laziness, lack of motivation, marriage, pregnancy, language problems, and parental indifference were not . . . major reasons why students . . . left school." According to this study, staying in is attributable to certain features of the school system, principally the attitudes, guidance and interest shown by teachers and an environment favoring the development of a positive self-image and active participation among students. Students who additionally have a psychological support system at home are least likely to drop out. In sum, where factors contributing to delayed education as a policy of avoidance are operative, early and numerous drop outs are likely; while school systems adapting to Puerto Ricans (in addition to, or instead of demanding their adaptation to mainstream ways) more often succeed in their purpose of facilitating education.

2. Research Questions and Procedures

The general problem just reviewed poses many unanswered questions, beginning with the fundamental need to know the drop out and delayed schooling rates for cities with sizeable Puerto Rican communities, and to further specify the main conditions under which these rates vary from highest to lowest. Although seemingly easy to determine, the needed rates were not generally available from the usual source, school enrollment records, since these do not separately distinguish Puerto Rican students, except in New York City and Chicago. Data on school enrollment collected by the U.S. Department of Health, Education and Welfare, Office of Civil Rights provide information for only the "Spanish American" category, which includes several groups in addition to Puerto Ricans. For the basic metropolitan profile it was therefore necessary to resort to special tabulations of the 1970 Census Public Use Sample tapes, which are dated as a source of contemporary information, but which provided many of the variables required. This data source had the additional advantage of being the principal basis at present for legal and administrative decisions regarding Puerto Ricans in the school system.

DEFINITION OF DROP OUT AND DELAYED EDUCATION RATES

A special tape for the Puerto Rican population extracted by the U.S. Commission on Civil Rights from the County Group Public Use Sample, 1 in a 100 file of household and individual census records containing the universal and 15 percent questionnaire data items was used for the initial processing. This source provided the age, school enrollment and attainment of each respondent sampled and a metropolitan area designation—the basic requirements for the research design.

Drop Out Rates

Drop out rates based on school enrollment records are usually the percent not graduating from high school among students reaching at least the ninth grade, regardless of age. For this study measures sensitive to the age schedule for school completion were preferred, as more precise and easier to relate to the corresponding delay rates. In each of the following age groups the numerator was the number of persons not currently enrolled who had not completed the 12th grade, while the denominator varied, as indicated:

Among 13-15 years old: all persons except High School graduates and those attaining or enrolled in higher levels

Among 16-18 years old: all persons except those attaining or enrolled in College

Among 19-25 years old: all persons

Delayed Education Rates

Both numerator and denominator varied in each age group, as follows:

Among 13-15 years old: $\frac{\text{Persons Enrolled Below 7th Grade}}{\text{Persons Enrolled in 1st to 12th Grade}}$

Among 16-18 years old: $\frac{\text{Persons Enrolled Below 10th Grade}}{\text{Persons Enrolled in 1st Grade through College}}$

Among 19-25 years old: $\frac{\text{Persons Enrolled Below 12th Grade}}{\text{Persons Enrolled in 1st Grade through College}}$

NOTE: All of the above rates were based on persons ever attending school.

10

THE SOCIAL FACTORS

Our research design for using census data beyond the calculation of drop out and delayed schooling rates aimed mainly at measuring social factors showing some antecedent-consequent or action-influence-result significance for educational attainment.

The variables considered in various combinations and more specific definitions were:

Household

number of persons per room

families with children under age 18

family size

family income

families in poverty

female-headed households

families with both spouses present

number of earners in the family group

Parental Generation

education attainment

employment status

occupation

industry

number of children

personal income

From "Quality of Life" indicator study metropolitan indices on:

Social Participation

Health and Education

Puerto Rican Community

birth in Puerto Rico

per capita income

population size

population growth rate

other Spanish origin persons in same city

School System

Average Dollar Expenditures per Student

For example, the percent of adult females in the labor force who were employed in white-collar jobs was obtained for each city and related to the drop out and delayed schooling rates.

In the following analysis we will first look at the student population and the relation between delayed education and incomplete schooling, and then examine the role of the Puerto Rican community's development and power, the parental generation's education, their social and economic status and the school system, seeking to sift from among these variables their relative importance for the delay and drop out. Finally, we will seek to find patterns of metropolitan areas that combine several trends clearly identified as supporting high or low educational achievement. It must be recalled throughout this report, however, that the units of investigation are metropolitan areas–not individuals–and that regardless of method, research using census data cannot pretend to examine such personal attributes and attitudinal aspects as school commitment and motivation.

WHICH CITIES, WHY AND HOW

Whether the Puerto Rican educational experience has been the same or different in the major metropolitan areas having sizeable Puerto Rican communities, is not an easily answered question. Community growth patterns among Puerto Ricans have varied greatly–ranging from longstanding settlements as in Honolulu, Hawaii and Lorain, Ohio–to places where most Puerto Ricans have recently arrived from the Island. Also, the continental Puerto Rican population has increased rapidly since the end of World War II to more than 1.6 million people, more than a thousand times the number first recorded in the United States Census of 1910. The largest increases due to migration from Puerto Rico occurred during the 1950s when the Island populace was encouraged to leave by prevailing conditions and the exodus was favored by

commercial and political interests. Since 1960 the number of continental Puerto Ricans has doubled, but most of the increase has been due to the birth of children to Puerto Rican parents and not to migration from Puerto Rico, which has drastically decreased. This means that the population eligible for schooling has increased most rapidly in recent years and that the Puerto Rican population can no longer be characterized as a transitory group of "outsiders." Today more than one-half of continental Puerto Ricans are between ages 6 and 24, generally considered the school age segment of a population, and those most in need of an education.

Continental Puerto Ricans have mainly situated themselves in large metropolitan areas, and within these, in central city neighborhoods that gradually acquire a high density of Puerto Rican habitation, creating a barrio or ethnic community. Ninety-eight percent of the Puerto Ricans live in urban areas (compared with 70 percent of the total U.S. population) and more than half of all Puerto Ricans live in barrios—perhaps as high as 80 percent, if the census category of "central city" residence is taken as a criterion. Ideally, many cities, barrios and neighborhoods having sizeable Puerto Rican populations should be studied and within each city selected a research design resembling the national project might have been followed, using individual records to further diagnose the local situation. This was not possible in our research, however, primarily because of a series of technical problems severely limiting the availability of data from the census records. Since the Public Use Sample contains only one percent of the population, an area would require more than 5,000 Puerto Ricans to offer minimal conditions—or some 50 cases—for valid and reliable results. Secondly, the data within metropolitan areas were found to be so limited and subject to the data suppressions effected by the Census Bureau to avoid possible identification, that no local analysis was possible. Replication of the national design

for those metropolitan areas having sufficient cases (New York, Chicago, Philadelphia) went beyond the project's resource and time capabilities.

An initial list of urban places with a Puerto Rican population of 5,000 or more persons in 1960 and 1970 provided a parameter for selecting metropolitan areas. The 23 cities within the defined limits were then located on the Census Bureau County Group Map and metropolitan boundary lines were compared with those employed by the Bureau in specifying the county group unit of information. A computer program then sorted the cases into a series of datasets according to cities and tabulations were effected by age and sex in categories of years 0-4, 5-9, 10-14, 15-19, and 20-24. The adult population was tabulated for "Head" and "Wife" household status and persons of all ages were distinguished according to birth in the United States or Puerto Rico. The results were then compared with published census reports, in order to determine the extent of sampling error and detect those instances in which valid tabulations could not be completed, for lack of sufficient cases.

As a result of the quality check, certain cities (Miami, Washington, D.C. and Honolulu) were found to have too few cases in the school ages, to provide a reliable base for tabulation.[6] In other instances where less severe problems were encountered, the social and economic characteristics of the local Puerto Rican population were examined to determine how cities could be combined to form composite categories having enough cases. Cities adjacent or regionally close to one another generally had similar Puerto Rican communities, suggesting the following combinations:

Chicago, Illinois/Gary, Indiana/Racine and Milwaukee, Wisconsin
Jersey City, Newark, Hoboken and adjacent Northwest New Jersey areas
Paterson and Passaic, New Jersey

Bridgeport, Hartford, New Haven, Connecticut
Buffalo and Rochester, New York
Cleveland and Lorain, Ohio (combined on adjacency basis only, with Lorain making up a minor portion)

Metropolitan areas remaining alone were: New York City; Philadelphia, Pennsylvania; Los Angeles and San Francisco, California; and Boston, Massachusetts. Each of these eleven categories were retested for sampling error and found to have sufficient cases and adequate distributions for detailed tabulation and analysis. The eleven metropolitan communities represented in this study encompass eighty-six percent of the total continental Puerto Rican population.

As a final note on methods, we must point out that the census data for each area were used without a corrective factor for such problems as the under enumeration of Puerto Ricans in the census and possible errors in the recording of information. This does not mean that these problems did not affect the statistics produced, but rather that no valid and reliable way of adjusting the raw data could be devised. In the absence of accurate information independent of the census—especially for such units as metropolitan areas—any adjustment scheme can be only arbitrary and likely to produce even further error.

3. General Research Findings

DROP OUT AND DELAYED EDUCATION MEASURES

Almost all Puerto Ricans age 13 to 15 were enrolled in school, contrary to the early drop out argument that, for some, enrollment ends before the compulsory school attendance age limit (14-15 years). Only in the Connecticut metropolitan areas was nonenrollment at this age level above five percent of the children enumerated in the 1970 census. Although no further attention was given to the early drop outs, for planning purposes it is important to know that up to age 16 Puerto Ricans are as "present" at school as the rest of the population.

The figures on delayed education in the 13 to 15 age group make it clear, however, that the grade level attended is often different and lower than the rest of the population (see footnote 8 for some comparisons). In Boston, Patterson, Passaic and the Connecticut metropolitan areas (typically places where the Puerto Rican community was in a growth and formation stage in 1970) at least one child in every four was a year or more behind the usual completion schedule. Other cities had at least a ten percent delay rate at this age level—except New York, where school policy favors on time completion up to the age limit for compulsory attendance—and San Francisco, where the delay rate was zero or no Puerto Rican child enrolled in a grade lower than expected.

Analysis to be explained later showed that delayed education in the 13 to 15 age group was a key factor in the drop out at older ages. The high school drop out rates in Table 1 distinguish between nonenrollment at ages 16 to 18 and at ages 19 to 24, the usual high school and college completion stages. According to definitions previously given, these rates will likely differ from drop out rates calculated without reference to ages, from high school records. All things considered,

any comparison using local figures should be with the drop out rate at ages 19 to 24, which summarizes the accumulated effects of not finishing high school for the age segment just beyond the usual high school completion stage and shows the percent not directly eligible for college enrollment.[7]

TABLE 1. EDUCATIONAL MEASURES FOR SCHOOL-AGE AND ADULT PUERTO RICAN POPULATION BY SELECTED METROPOLITAN AREAS: UNITED STATES, 1970

	SMSA'S											
	Boston	Buffalo/ Rochester	Chicago	Cleveland/ Lorain	Connecticut Metro Areas	Los Angeles	New York	Newark/ Jersey City	Patterson/ Passaic	Philadelphia	San Francisco	SOURCE
AMONG PUERTO RICANS EVER ENROLLED:												
Percent Drop Out for												
Ages 16-18	80	33	28	27	37	22	21	14	36	31	00	(a)
19-24	65	44	71	52	70	26	54	58	53	77	09	
AMONG PUERTO RICANS CURRENTLY ENROLLED:												
Percent Delayed for												
Ages 13-15	33	14	12	14	24	10	08	13	30	21	00	
16-18	00	00	18	00	17	14	20	14	33	08	00	(a)
19-24	00	25	60	00	00	33	53	89	67	33	20	

Sources of Data in Tables 1-3: U.S. Bureau of the Census,

(a) Public Use Sample, Census of Population and Housing: 1970, 15 Percent/County Group/1:100 File.

(b) Census of Population: 1970, *Subject Reports* Final Report PC(2)-1E Puerto Ricans in the United States.

(c) _____, PC(2)-1C Persons of Spanish Origin in the United States.

(d) Census of Population: 1960. *Subject Reports. Puerto Ricans in the United States.* Final Report PC(2)-1D.

(e) *Statistical Abstract of the United States*, 1971.

Annotation 00 signifies less than one percent; at least one census record was found in each of these cases.

In theory, high school drop out rates for persons 16 to 18 years old should approximate rates for those age 19 to 24, since under usual conditions both groups could be assumed

to have reached a grade level at which high school graduation is possible. The wide gaps evident for Puerto Ricans in each city point to the fact that a significant delay factor was operative, placing the full impact of the high school drop out at ages 19 to 24—beyond the usual high school completion stage and when other persons enrolled are typically pursuing a university education. In Chicago, for example, 28 percent of Puerto Ricans age 16 to 18 were not enrolled and had not graduated from high school; but this did not mean that the other 72 percent would graduate before their 19th birthday. On the contrary, many would continue enrolled and eventually drop out, making up the large proportion of young adults not enrolled nor high school graduates, 71 percent among those 19 to 24 years old.

Boston was the only city in which the age 19 to 24 drop out rate was lower than the corresponding age 16 to 18 figure. An apparent contradiction, this situation may be explained by the particular features of the Puerto Rican community living there in 1970, which included many very poor families with teenage children, a lesser number of families with young adults and among these, some with moderate incomes. In addition, the Puerto Rican population 19 to 24 years old included a fair number of college students from Puerto Rico, attending the many institutes of higher learning in this traditionally academic urban center. Here one finds a striking contrast between one of the most disadvantaged Puerto Rican communities in the United States and a smaller but well educated group of Puerto Ricans—both living in the same metropolitan area. To a lesser extent the same duality became apparent in other areas outside Boston, except in Los Angeles and San Francisco, where the Puerto Rican communities had a more homogeneous and less poverty-affected situation.

The fact that in most cities more than half of Puerto Rican youth never completed high school clearly demonstrates

little progress when compared with the national pattern of school attainment of these 25 to 44 years old; as previously mentioned, about 75 percent had not graduated from high school. This means that except in San Francisco and possibly Los Angeles, very few Puerto Ricans were emerging from the schooling process qualified for the skilled, white-collar, managerial and professional occupations having an income, security and prestige potential above the routine manual and service level typical of the parent generation. Variations in drop out rates from city to city convey the extent to which the new generation (and the Puerto Rican community, in turn) will be limited in its human resource possibilities.

A TYPOLOGY OF DROP OUT AND DELAY TYPES

While the rest of this study seeks an answer to why these variations were found, an initial typology helps explain the relation between the drop out and delays in schooling:

1. In situations where a significant proportion of Puerto Ricans age 13 to 15 were delayed in their schooling, the drop out rate between ages 16 to 18 was higher, indicating that many were behind schedule and did not continue beyond the usual high school enrollment age. Boston, Patterson-Passaic, Philadelphia and the Connecticut metropolitan areas exemplify this drop out type, which can be likened to a life expectancy model in which few survive to an age when such an event as college enrollment generally takes place.
2. In some instances a moderate delay rate at ages 13 to 15 signified that most children followed the usual schedule up to the high school stage and then encountered delays and eventual drop out, not quite at the same level as in the type just described. Newark, Jersey City,

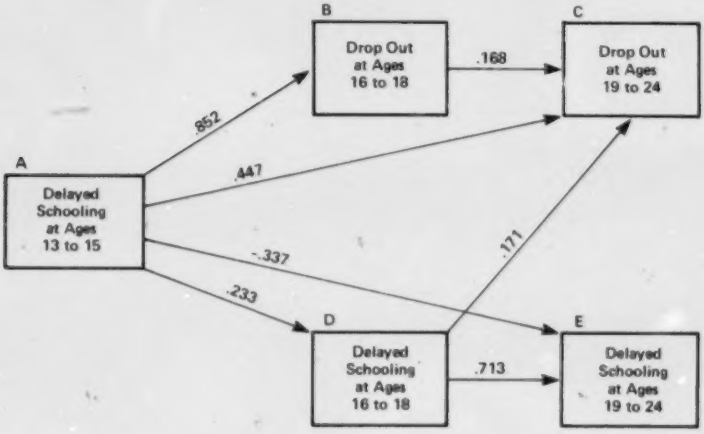
and New York were in this situation, while Chicago had an intermediate condition between types 1 and 2.

3. Cleveland and Buffalo-Rochester suggest a somewhat different pattern, in which Puerto Ricans had problems similar to type 1 at the elementary level but those who survived delays and drop out until age 16 did not seem likely to have additional delays ahead and would graduate from high school in larger proportions than in type 2.
4. A large gap was apparent between these three types and the favorable situation exhibited by the West Coast cities. Even so, the data for Los Angeles bear traces of the previous types, in that 10 percent of Puerto Ricans age 13 to 15 were at least one year behind schedule, and among those age 16 to 18 there was a 22 percent drop out rate and a 14 percent delay rate—all likely background factors for an eventual drop out rate of more than a quarter of Puerto Rican young adults.

A PATH MODEL OF EDUCATIONAL ATTAINMENT

The influence pattern implied by this typology is summarized in the model portrayed in Figure 1, which assumes that delays at ages 13 to 15 precede delay and drop out problems at ages 16 to 18 as causes of the eventual drop out and further delays among young adults. Although the measures at each age level are separately calculated and refer to different people, they can be linked in a correlation matrix using the eleven metropolitan areas as units of analysis, with each city's set of delay and drop out scores representing what would be a sequence in actuality. By further calculating correlations while controlling for the influence(s) of previous or cause variables, the net effect of one factor on another can be obtained, and the general "fit" of the model's direction and interaction can be tested by using estimating equations in path analysis.

FIGURE 1. PATH DIAGRAM OF INFLUENCE FACTORS OF A SOCIAL AND ECONOMIC NATURE EXPLAINING DELAYED SCHOOLING AT AGES 13 TO 15, PUERTO RICANS, 1970



Numbers represent path correlation coefficients measuring net effect between variables. Original unstandardized Pearson correlation coefficients were: A, C -.512/ A, D -.442/ A, E .160/ A, F .705/ E, D -.083/ E, F -.320.

Correlation coefficients range upward from zero, or no relation between variables, to .999 or a complete match, one variable increasing or decreasing exactly in step with the other. The strongest relation among the variables in our model was .852 between delayed schooling from ages 13 to 15 and the drop out rate at ages 16 to 18, clearly indicating that the higher the delay, the higher the drop out. A strong relation was also found between the early delay and the eventual drop out (ages 19 to 24) both as a direct influence and indirectly as part of the drop out rate at the usual high school age level (ages 16 to 18). The strength of the primary influence (A, B or early delay with drop out, 16 to 18) was enhanced when standardization reduced the other zero-order correlations mentioned. This shows that students encountering delays in elementary or junior high school are likely to have a high rate of eventual drop out regardless of whether they continue enrolled through age 18, and that a major negative factor in the Puerto Rican educational experience takes place before the usual high school stage. This portion of the model helps explain the mechanisms operative in type 1 situation previously described, which had the highest percentage of delayed schooling at ages 13 to 15 and the highest drop out from age 16 to 18.

Although the strong influence of early delay and problems at the elementary level were demonstrated to be at the root of the eventual drop out, their relation to delays and problems at older ages was weak or negative. An apparent contradiction, this result is understandable when considering that students proceeding on time up to the usual secondary school age level can and do experience delays and problems at that level, as indicated by type 2, previously described. Our model shows that, even when most students are enrolled in grades corresponding to their age through the compulsory attendance limit, significant disparities still take place. While in this instance delays at the secondary level contribute to the

eventual drop out, a still stronger effect is a further delay pattern in late adolescence and young childhood. As a consequence, graduating from high school (and from college, in turn) becomes a more prolonged experience than usual; for many students this means a disjointed, repetitious or interrupted educational experience, hardly conducive to eventual success. As in the first pattern, standardization served to strengthen the principal correlation linkage (D, E or delay at ages 16 to 18 with delay at ages 19 to 24), which further shows a separate causal mechanism, especially when the negative relation between early and eventual delay is considered.

While two patterns could be distinguished in the model, their close interrelation became evident not only in terms of having a common root in early delay, but when the path coefficients were adjusted for other influences a perfect fit was obtained for the entire model with the original or zero-order correlations. This meant that the theoretical arrangement of variables was confirmed and that the root influence (variable A in Figure 1 or delayed schooling at ages 13 to 15) could be used as a single measure of the educational problems to be analyzed from a social and economic viewpoint. By thus reducing the variable to be explained, greater latitude was obtained for a complex explanatory model of the type just described. The accurate fit also evoked confidence in the applicability of the regression method to the data used in this study, which include thousands of persons, but for statistical purposes make up only eleven aggregate cases, a small number for ordinary correlation analysis.

One could argue against using path analysis here because it is typically applied to define coordinated relations based on the clustering of many individuals in large populations. A small number of cases might yield a distorted picture if a few were out of line with the rest. Accordingly, each variable pair was closely examined and no unusual patterns were

found. For further assurance we applied a "shrinkage" adjustment devised for detecting exaggerated multiple correlation results based on small populations.[9] Another objection went in the opposite direction; namely, that path analysis was unnecessary because the interrelations were obvious from Table 1. Since path analysis provides a significance test for relations visually apparent or conjectured in such instances, it seems amply justified. Its principal advantage is precisely the clarifying capability of a diagram summarizing a complex influence network and the discovery of patterns not readily apparent or weak in tabular presentation.

From a less technical angle, the significance of the model tested can be summarized as describing mathematically the collective educational experience of Puerto Ricans following alternate paths to what is basically a failure or, at best, a problematic condition, involving eventually dropping out or obtaining a high school degree only at considerable personal cost. In one or another way the maze analyzed here encompasses at least the sixty percent who eventually do not complete high school and perhaps an additional twenty-five percent who graduate later than usual in the prevailing career schedule. The debilitating nature of both outcomes for the Puerto Rican collectivity implies that either drastic improvements are made in their schooling or the likely consequence will be a generation of poorly educated persons.

4. Social and Economic Factors

Faced with such a discouraging picture, attention must be drawn to conditions that help explain the situation and might therefore suggest ways in which it could be altered, aside from the obvious solutions of matching grades with age and encouraging continuity and success in the school system. Answers to the fundamental question of the Puerto Rican community's role in school problems were sought by distinguishing elements possibly having a direct influence on students, such as their parents' education, from aggregate features exemplified by poverty—which reflect the social conditions of Puerto Ricans within the larger structure of behavioral relations defining the collectivity as a disadvantaged minority. In so doing it was assumed that in so far as the characteristics of the Puerto Rican community did not fully explain the educational situation, the unexplained variation could be attributed to mainly external factors such as the school system, the political mechanisms setting educational policy and the impact of the majority population itself. The relative influence of these factors could be defined only vaguely in this study, requiring further attention in future research.

A CONSIDERATION OF CERTAIN FACTORS

Our strategy for the initial task of identifying the indicators that would most reliably portray the Puerto Rican community's influence was to devise as many measures as reasonably extracted from published census reports, and evaluate them in correlation matrices and in regression equations aimed at examining their relation with each other and the variable to be explained. The ultimate purpose was to reduce redundancy and unrelatedness to the extent of obtaining a small number of genuinely explanatory variables.

Variables correlated with the "dependent" or root variable in the delay/drop out model were also tabulated with the other elements of the model, to avoid missing a weak but still important relation. As a by-product of this process, the following variables were discarded as either *unrelated* to the school problem or having *less explanatory power* than similar indicators to be later discussed:*

1. Among Puerto Rican adults:
   - median school years attained by the generation starting school in the 1910s; and the same for the 1920s
   - percent unemployed, separate for males, females.
   - percent not in the labor force, separate for males, females.
   - personal income.
   - average number of children ever born by women ever married.

2. Among employed Puerto Rican adults:
   - percent in manufacturing industries, separate for males and females
   - percent operatives
   - percent in clerical and sales work, female
   - percent in service work, separate for males and females

3. Among Puerto Rican households
   - average number of persons per household, and average family size, separate for poverty and nonpoverty households.
   - average number of earners in a family.
   - percent headed by women with children under age 18.
   - percent having children under age 18, separate for poverty and nonpoverty households.

*As used here "average" refers to the mean number.

- ratio of households headed by person born in Puerto Rico to those headed by a Puerto Rican born in the United States.
- percent of families with both spouses present.

As can be gathered from the list, a first impression is that factors often considered crucial to the success or failure of minority students are here said to not explain the Puerto Rican educational picture. This was partly true where labor force participation, employment status, routine manual work, household and family size were measured. In the other cases a more precise indicator or one more closely related to the delay and drop out rates was chosen. It is worth noting, however, that certain aspects of Puerto Rican life—the stereotyped "crowding" in households; jobless or idle parents and differences between factory and service work—were not statistically relevant to the school situation.

Metropolitan area indicators devised by the Midwest Research Institute were similarly examined, with a view to include some measure of variation in the quality of education and openness to minority concerns.[10] But clear and consistent results were not obtained, possibly because one of the pertinent indices compounded health with education measures and the latter were defined mainly by adult attainment, instead of school system variables. In contrast, a component factor, per capita local government expenditures on education, yielded more applicable measures and was retained. The social participation index, composed of 51 variables, also proved unrelated to the variables to be explained and most of the potentially explanatory measures. Some of the conditions included produced meaningful results when calculated for the Puerto Rican population only, and an alternative to the equality factors based on Spanish origin persons instead of blacks and males/females also provided a key explanatory indicator.

SOCIO-ECONOMIC INDICATORS

Items found to have some explanatory value are presented in Tables 2 and 3, beginning with three measures of educational attainment among Puerto Rican adults. As will be observed, metropolitan areas with type 1 school problems did not have the lowest parent educational attainment. This may be explained by the two-tier social composition of the Puerto Rican community previously mentioned, exemplified by New Haven, a city having both very poor and well educated Puerto Ricans. The weak negative correlations generally observed between parent's education and the delay and drop out rates are therefore attributable largely to the unusually high level of adult school attainment in Los Angeles and San Francisco, cities where school problems were least visible.

Here one could argue that if the two tiers were separately considered, a closer fit would prevail between parents' educational attainment and school delays and drop outs. While this might indeed eventuate, the indicators would no longer represent Puerto Rican urban communities, but rather social classes within these communities. One of the main purposes of the research ran contrary to this kind of fragmentation; to adequately characterize a Puerto Rican group in a given metropolitan area, its relative strengths and its disadvantages must be considered as a connected reality. Again, our units of analysis are the Puerto Rican people grouped together in eleven metropolitan categories, not individuals nor subgroups within urban areas.

The two-tier pattern became apparent once more among indicators relative to occupation, principally those measuring Puerto Rican involvement in professional and other types of white collar work. In this instance a weak negative relation was found with school problems, despite the odd situation in Boston, where high delay and drop out rates accompanied rates of professional work among Puerto Ricans. By removing

TABLE 2. OCCUPATION, INDUSTRY AND INCOME MEASURES FOR THE PUERTO RICAN POPULATION BY SELECTED METROPOLITAN AREAS: UNITED STATES, 1970

	SMSA'S											
	Boston	Buffalo/ Rochester	Chicago	Cleveland/ Lorain	Connecticut Metro Areas	Los Angeles	New York	Newark/ Jersey City	Paterson/ Passaic	Philadelphia	San Francisco	SOURCE
AMONG PUERTO RICAN ADULTS												
Median School Years Attained in Generation Starting School in 1930s	7.5	5.9	6.9	7.0	7.0	10.5	8.1	7.8	9.1	8.8	10.0	(a)
AMONG PUERTO RICANS AGE 25 AND OLDER												
Percent High School Graduates	22.5	15.3	14.7	14.8	19.2	40.3	20.9	18.0	25.3	20.0	32.2	(b)
Median Number of School Years Completed	8.1	7.8	8.1	8.1	8.2	10.8	8.6	8.2	8.6	8.0	9.7	(b)
AMONG PUERTO RICANS EMPLOYED ACCORDING TO:												
Occupation												
Percent Professional and Administrative	11.4	8.3	4.6	2.5	6.4	13.4	8.4	5.9	7.9	7.4	10.6	(b)
Percent Sales and Clerical (males only)	10.6	5.1	9.9	6.0	16.6	14.7	18.6	9.3	9.1	9.0	13.5	(b)
Industry												
Percent in Professional Services	11.5	12.5	4.9	7.8	9.9	13.0	12.6	5.8	6.0	8.4	14.5	(b)
Percent in Wholesale and Retail Trade	21.7	11.2	13.7	10.5	11.0	17.4	19.8	15.9	13.4	17.0	16.6	(b)
AMONG PUERTO RICANS RECEIVING INCOME												
Median Family Income, Dollars	4998	7098	7021	8086	6773	7976	5675	6040	6936	6182	9171	(b)
Percent of Males Receiving $10,000 or More	6.1	7.0	5.1	8.5	6.2	13.6	5.5	5.8	9.3	4.8	18.2	(b)
Percent, Families Receiving $10,000 or More	16.3	25.9	25.8	31.9	22.8	33.7	18.5	21.7	28.4	21.5	44.5	(b)
Per Capital Income, Dollars (Both Sexes, All Ages)	1526	1690	1780	1876	1747	2615	1751	1746	2104	1588	3066	(b)

Boston the relation would be strengthened considerably, since other type 1 communities had relatively few white collar workers, whereas Los Angeles and San Francisco, with low delay and drop out rates, scored high in professional, managerial, clerical and sales workers. But this would resemble the internal fragmentation of Puerto Rican communities to suit preconceived theoretical notions and was therefore not an avenue followed.

The negative white collar/school problem relation nonetheless became evident when the income received by Puerto Ricans was considered, which proved to be the first genuinely clear relation with delay and drop out rates. Even in this instance, however, a very close match was not obtained. Cleveland-Lorain, for example, had a somewhat higher income situation than would be expected on the basis of a regression on delay and drop out rates, and the New York City Puerto Rican community was lower in income than the same type of analysis would suggest. These cases illustrate how individual communities can vary significantly from national social and economic patterns, making difficult the formulation of a consistent explanation for educational problems. They also point to the importance of other determining factors—such as family income as influenced by family size and the number of earners in a family, all of which were closely related.

The depressed income situation among Puerto Ricans in New York City, joined to a much higher cost of living than in most United States metropolitan areas prompted us to give special attention to the relation between income and school delays and drop outs. Additional tabulations were effected, adjusting each community's scores by a weighting factor proportional to its size in the national Puerto Rican population. Although approximately 71 percent of all Puerto Ricans considered in this study lived in New York City, this did not appreciably affect the nature of the

correlations obtained. Secondly, no significant correlation was found between a metropolitan area's consumer price index (relative to the entire population) and the delay or drop out rates for Puerto Rican teenagers and young adults.

COMMUNITY INDICATORS

In contrast, the same line of reasoning yielded meaningful results for the first three indicators presented in Table 3. A negative correlation of .574 was found petween the percapita expenditure per student in the public school system of the eleven metropolitan categories, and delayed education at ages 13 to 15. Between the same set of figures and the eventual drop out (ages 19 to 24) an even higher coefficient (-.693) was found. This seemed to indicate that school problems were not simply a matter of how much financial resources or buying power existed in a Puerto Rican community, but also how much the school system invested in local educational programs.

Admittedly, there are several important limitations in the type of comparison just made: some of the metropolitan categories contained more than one city and school system; the amount spent on Puerto Rican students might differ from the percapita expenditure for all students, and school system budgets vary widely in terms of allocations for the type of instruction or school organization that might make a difference for delays and drop outs among Puerto Ricans. The only adjustment found possible for these limitations was to calculate an average percapita expenditure figure for the cities that were combined in categories, weighted for their proportional population size. The strength of the correlations found was considered sufficient to warrant a tentative acceptance of adjusted figures, leaving the matter open to further refinement in future research, as more accurate measurements of the school systems' role becomes possible.

TABLE 3. COMMUNITY INDICATORS FOR THE METROPOLITAN AREAS SELECTED, 1970

	SMSA'S											
	Boston	Buffalo/ Rochester	Chicago	Cleveland/ Lorain	Connecticut Metro areas	Los Angeles	New York	Newark/ Jersey City	Patterson/ Passiac	Philadelphia	San Francisco	SOURCE
FOR ENTIRE CITY POPULATION												
Educational Expenditures Per Student (in dollars)	988	1,223	913	953	1,018	1,070	1,191	980	965	960	1,244	(c)
IN EACH METROPOLITAN AREA: (in thousands)												
Number of Puerto Ricans	11.3	11.0	87.2	14.1	38.5	21.8	852.1	70.1	23.8	43.1	10.3	(b)
Number of Other Spanish Origin Persons	24.9	15.5	237.0	17.6	28.8	1029.7	437.0	100.1	29.7	36.0	221.2	(c)
PERCENT OF TOTAL POPULATION REPRESENTED BY												
Puerto Ricans	0.4	0.5	1.2	0.6	1.5	0.3	8.5	2.8	1.8	0.9	0.3	(b)
Other Spanish	0.9	0.7	3.4	0.8	0.1	14.6	4.4	4.0	2.2	0.7	7.1	(c)
AMONG PUERTO RICANS												
Ten Year Population Growth Rate	66.8	5.2	12.5	7.8	15.2	5.7	3.5	15.7	17.6	8.7	13.8	(b&d)
Percent Born in Puerto Rico	75.8	58.9	60.8	53.2	70.4	50.0	55.8	62.5	58.1	59.9	37.8	(b)
AMONG PUERTO RICAN FAMILIES												
Percent in Poverty	40.0	24.4	23.4	18.1	26.1	14.8	29.7	26.5	20.7	31.0	12.8	(b)
Percent with Children under Age 18	41.8	16.0*	25.6	16.7	30.4	24.2	38.7	31.0	32.4	39.1	23.4	(b)
Percent with Woman as Only Parent	28.0	14.0	16.4	9.9	20.8	16.0	28.5	21.6	17.6	20.2	12.9	(b)

*rates for Rochester only, Buffalo data not reported

The school expenditure finding and the equality components of the social participation indicator previously mentioned suggested looking into measures of the Puerto Rican communities' relative power to influence the appropriation and use of funds that might help solve educational problems. For lack of more refined indicators, the total number of Puerto Ricans in each metropolitan category and their percent as part of the local population was examined. Our assumption centered on the importance for public policy of having a "critical mass" of Puerto Ricans in a city—often said to be necessary before the community can hope to obtain some degree of participation in what happens, especially in the school system. In other words, until Puerto Ricans become clearly visible and present in sufficient numbers to persuade school officials that something "must be done" about the high drop out rates and other problems, solutions are not likely to be discussed. Certainly the main thrust of recent legislation relative to appropriations of public funds has served to strengthen the connection between population size and policy participation, in many cases as an explicit formula equating power to numerical representation.

Since Puerto Rican communities outside New York City were relatively uniform in the smallness of their population size and made up a minor percent of the local populace, no initial relation was found with delay and drop out rates. But when other Spanish origin people were added, the national picture assumed a somewhat different perspective. Based on population totals, moderately negative correlations emerged with each of the elements of the delay/drop out model, indicating that with greater numerical strength went a decline in school problems. The negative correlation was considerably strengthened when the percentage of Spanish origin persons in the total population replaced population totals. In this instance, type 1 communities—those having the most acute delay and drop out situation—typically had

proportionately minor Spanish origin populations, whereas Los Angeles and San Francisco, both with favorable school rates, had sizeable Spanish origin populations. Implied maybe that numerical strength in a metropolitan area depends more on proportional representation than on the total minority population count. If, for example, only half of New York City's Puerto Rican community lived in another city having a million inhabitants, it would be a majority and probably have a very different power condition.

Against our perspective it can be argued that Puerto Ricans make up a relatively small part of the Spanish origin population in Los Angeles and San Francisco, which (along with type 1 cities at the other extreme) uphold the negative correlation with drop out and delay rates for Puerto Ricans only. Being a smaller component of a city's Spanish origin population than other groups no less typifies Puerto Rican communities than situations in which Puerto Ricans predominate. In fact, this constitutes a fairly wide-spread condition in places like Miami, Dallas, Detroit and Washington, D.C., and poses a different but important condition for an emerging national minority. Moreover, the repetitive nature of the struggle for improvement in school systems, the generalizing influence of federal legislation and the resemblance in educational problems among Spanish origin groups all point to a basically low power condition, regardless of which group predominates, and to the salience of unity. Our comparisons are among metropolitan categories that each summarize a Puerto Rican community's educational experience, whether this occurs in a setting of Hispanic origin such as California, or one of hostility and succession among European immigrant groups, as in the Northeastern cities in the United States. Lastly, the ultimate application of these measures as explanatory variables (to be later explained) gave equal importance to Puerto Rican and other Spanish origin population totals and proportional representation.

Our results pose an intriguing set of considerations ranging from the purely technical to issues crucial to whatever basic options Puerto Ricans may have in the American social system–including the desirability of coalition politics with such groups as the Mexican Americans, and a policy favoring concentration or dispersal as strategies having a certain power-generating value. National migration trends do not offer a clear answer to certain related questions, since relatively small communities have grown most rapidly in recent years, but large Puerto Rican aggregates (mainly, New York City) have reversed the declines apparent in the 1960s, when extensive dispersal seemed likely. Whereas newer communities–of which Boston and the Connecticut metropolitan areas are typical–have grown largely as a result of direct migration from Puerto Rico and an outward movement from New York City, longer-standing communities such as New York itself, Philadelphia, Chicago and the West Coast have maintained or expanded their relative size by reproduction as well as continued migration.

As a result, the newer communities tend to have a much larger percent of Puerto Ricans born in Puerto Rico. This indicator (see Table 3) ranged upward from 37.8 percent in San Francisco to 75.8 percent in Boston, yielding a moderately positive correlation with the delay and drop out rates, an important change from the uniformly negative relations up to now examined. The 1960-1970 population growth rate in each metropolitan category provided a parallel set of figures, suggesting that recent uprooting and cultural continuity from Puerto Rico are additional explanatory factors in delayed schooling and school attrition.

The final set of variables clustered about measures of poverty or income inadequacy, as defined by the U.S. Census Bureau on the basis of a scale relating family size to total payments received by family members. For social research purposes, the percent of families classified as in poverty has

a special meaning where minority people are concerned. In many ways this figure summarizes the complex web of exploitation, neglect and alienation that characterizes the people most victimized by the internal colonial system—persons caught in a trap of despair combining no political power, social stigma and financial destitution. Accordingly, poverty is not a condition over which minority groups have ample control; much to the contrary, it symbolizes relegation to the last places in the proverbial opportunity queue of a highly competitive order.

Perhaps the most tragic aspect of this study is a triangular relation among the percent of families in poverty, the percent with children under age 18, and the percent with a woman as the only parent. This serves to clarify why the segments of a Puerto Rican community that are in most need of financial and other resources tend to be those least likely to have a realistic chance to obtain them: families struggling to raise children, and women faced with double discrimination in fulfilling primary family responsibilities. These interrelated variables are those previously mentioned as developed for the Puerto Rican community along the same lines as the individual equality and general living condition components of the metropolitan quality of life indices.

5. An Explanatory Model

COMPOUND INDICES FOR A MULTIVARIATE ANALYSIS

From a theoretical perspective, the poverty variables just reviewed qualify clearly as a root or fundamentally explanatory factor (similar to delayed schooling at ages 13 to 15 in the first model) providing the basis of an interactive model of social and economic influences. For this purpose, a compound index was devised which incorporated recent population growth and migration in the poverty measure for each metropolitan category, variables found to be closely related with the cluster of poverty measures: the proportion among families represented by those with income inadequacy, those with children under age 18 and those with a woman as the only parent.

A similar procedure was followed with the other principal factors reviewed—parents' education, occupation and income; school system expenditures per student, and the numerical strength of the Spanish origin community—in order to reduce the number of explanatory factors to a manageable set of multivariate measures, and produce variables less likely to distort the general picture because of extreme or exaggerated values. In each case, the following format was used: for each variable entering into a compound index, the numbers (percent, mean, median) were ranked on an ordinal scale from one to eleven, with each metropolitan category receiving a score corresponding to its relative position among the others. Next, each community's scores were totaled, and the total was divided by the highest possible score, which yielded a percentage indicating how close or far a given community was in relation to a compound variable's maximum value.

To illustrate, the first compound index presented in Table 4, parents' educational attainment, was composed of the three variables relative to this item in Table 2: median school

TABLE 4. COMPOUND INDICES USED IN MULTIVARIATE ANALYSIS

INDICES	SMSA'S										
	Boston	Buffalo/ Rochester	Chicago	Cleveland/ Lorain	Connecticut Metro Areas	Los Angeles	New York	Newark, Jersey City	Patterson/ Passaic	Philadelphia	San Francisco
Parents' Educational Attainment	48.5	15.2	18.2	24.2	42.4	100.0	66.7	48.5	60.6	48.5	90.9
Parents' Socio-Economic Status	48.9	50.0	40.9	48.9	48.9	88.6	59.1	56.4	55.7	35.2	89.8
Educational Expenditures Per Student, Dollars	988	1223	913	953	1018	1070	1191	980	965	960	1244
Numerical Strength of Spanish Origin Persons	31.8	22.7	73.3	34.1	45.4	63.6	93.2	77.3	59.1	50.0	45.4
Community Poverty and Degree of Recent Migration	96.4	30.9	49.1	25.4	70.9	27.3	60.0	76.4	61.8	70.9	25.4

years attained in the generation starting school in the 1930s; percent high school graduates, and median number of school years completed among Puerto Rican adults age 25 and older. In this case the highest possible score of 33 was acutally found in Los Angeles, where the Puerto Rican community had the highest number in each variable and therefore a 100.0 compound index. San Francisco (with 90.9) was closest to Los Angeles and Buffalo-Rochester (with 15.2) was furthest away.

The other compound indices were composed as follows:

- Parents' Socio-Economic Status: balance of occupational, industrial and income variables listed in Table 2.
- Educational Expenditures per Student: per capita school system investment in dollars, not ranked.
- Numerical Strength of Spanish Origin Persons: the number and percent of Puerto Ricans, and (separately) of other Spanish origin persons in a metropolitan category.

– Community Poverty and Degree of Recent Migration: balance of variables listed in Table 3.

The resulting numbers were then included in a correlation matrix with the variable to be explained, delaying schooling at ages 13 to 15.

This resulted in an exceptionally close relation (r = .705) between the compound community poverty/recent migration index and delayed schooling, showing that as one increased, so too did the other. The other explanatory variables–all negatively related to the delayed schooling–had lower, but still persuasive coefficients: parents' education (-.292), parents' social and economic status (-.561), school expenditures (-.574) and numerical strength (-.320). While each case could be separately discussed, a more synthetic way of interpreting the results became possible by using path analysis.

A PATH MODEL OF EXPLANATORY FACTORS FOR DELAYED SCHOOLING

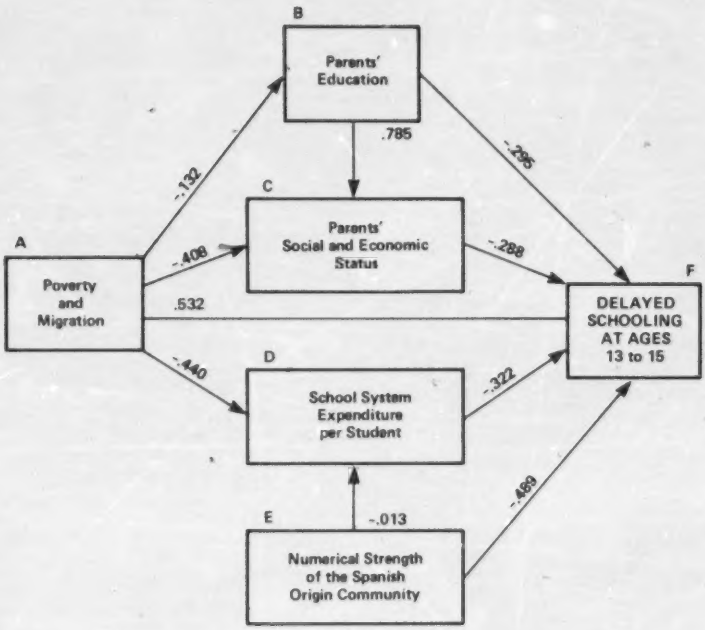
Our theoretical arrangement of variables, depicted in Figure 2, converts parents' education and socio-economic status into factors intervening between the compound poverty/recent migration index and delayed schooling. It further assumes that the generally exploitative and discriminatory conditions accounting for poverty find further expression in a relatively low investment per student in the school system; whereas stable, constructive relations between Puerto Ricans and the majority would be accompanied by a greater expenditure per student, having a beneficial effect on the drop out problem, in turn. Lastly, in our opinion no link is clearly discernible between poverty/recent migration and numerical strength, for while one might expect these to be negatively related, they refer to different social processes in the internal colonial system–one being the mechanisms

keeping the poor poor, and the other symbolizing an oppressed community's strategy for limited participation in determining the way things happen to its membership. The latter also combines the influence coming from the Puerto Rican community with numerical strength from other sources: namely, the Spanish origin persons who live in the same cities.

The standardized regression coefficients demonstrated, as expected, an indirect influence on delayed schooling, from poverty/recent migration, through the parents' educational and socio-economic status (which were so closely interrelated themselves as to constitute a single path), and also through the school system's average expenditure per student. The direct influence was therefore reduced from .705 to .532, still the strongest explanatory factor in the model. This means that while a primary influence on the delay and drop out rates came from the disadvantaged position of Puerto Ricans in the American social system, the connection was even further strengthened if the students' parents themselves had a limited school background and a manual work/limited income situation. Since relatively low investments in the educational process had a similar impact, the most unfavorable circumstance would be a recently migrant community with a fair degree of poverty, few well educated parents working in white-collar jobs, located in a city having below average financing for its school system.

The standardized explanatory power of the numerical strength variable was almost as great as the direct influence of poverty/recent migration. But this was a negative relation; in other words, as the numerical (and presumably effective) representation of Puerto Ricans and other Spanish origin groups was maximized, the delay and drop out rates were significantly reduced or nonexistent. The extreme examples of the poverty/recent migration paths (New England) and the more favorable situation in West Coast cities calls to mind

FIGURE 2. PATH DIAGRAM OF INFLUENCE FACTORS AMONG DROP OUT AND DELAYED SCHOOLING RATES IN ELEVEN METROPOLITAN AREAS, PUERTO RICANS, 1970



Numbers represent standardized path correlation coefficients measuring net effect between variables. Original zero-order Pearson correlation coefficients were: B, C .532/ A, C .630/ A, E -.171/ D, C .258/ D, E .635.

illustrations of the two main influence factors exhibited by the interactive model: poverty/recent migration and the Spanish origin community's numerical strength.

The model's predictive capabilities were further confirmed by a near-perfect fit with the original, zero-order coefficients, when adjustments were made for all possible influences in the path estimating equation; there were three discrepancies, the largest 1.4 percent from the original figures. Moreover, the summary statistics showed 79.2 percent of the variation explained with respect to the dependent variable, or delayed schooling at ages 13 to 15. The composition of the explained variation was: poverty/recent migration (49.7 percent); numerical strength (adding 19.2 percent); school expenditures (adding 9.0 percent); and parents' socio-economic situation (adding 1.3 percent). When the "shrinkage" adjustment was calculated for possible error due to a small number of cases, the general predictive capability was reduced to 65.3 percent and the component figures similarly decreased. Even at this somewhat lower level, a major portion of the variation was accounted for, leaving an indeterminate margin of about a quarter of the variation.

6. Conclusions

The research reported here attempts to mathematically portray social mechanisms involved in the United States educational system's failure to provide a learning environment appropriate to a major native minority group. The findings show that as of 1970 little or no progress was taking place in the schooling of Puerto Rican young adults; that is, as compared with the parent generation's school attainment and that of other minority groups. By contemporary standards this implies a decline, since educational requirements for employment have escalated and today success in American society necessitates knowledge well beyond the routine manual skills having a certain labor market value in the 1950s, if indeed they ever meant a path to genuine opportunity.

Nationally about 60 percent of Puerto Rican youth enumerated in the 1970 Census had left the educational system before high school graduation. An additional 25 percent graduated, but only with some delay in the usual schedule for completion–indicative of school problems even in success. In both cases the difficulties can be traced to the elementary level, at which the delay began for many and the negative influences stemming from a discouraging school environment, which set trends in motion that eventually led to either dropping out or graduating at considerable personal cost.

In varying degrees the delay/drop out pattern was found in nine out of eleven metropolitan area categories studied, some of which represented more than a single city. Even in Los Angeles about a quarter of Puerto Rican adults were high school drop outs and only in San Francisco did the school

situation approach the majority condition. Among other cities the two basic patterns identified were:

1. A rather common experience of being left back at least one grade in elementary school and dropping out just beyond the age limit for compulsory school attendance; that is, when the student is 15 or 16 years old. This was taking place primarily in Puerto Rican communities that were relatively small in size, recently established or rapidly expanding, and where, except for a minor segment of well educated parents, most Puerto Rican adults were manual workers having a limited school background themselves, and often obliged to work in low-paid, part-time or uncertain jobs. Most clearly exemplified by the metropolitan areas in New England, the first pattern was also found in Philadelphia, Patterson-Passaic and to some extent in Chicago, Cleveland and Buffalo-Rochester. It provides a prototype of early community development or of very limited community development—in which Puerto Ricans must struggle for recognition and eventually minor concessions, and will most likely continue facing a basic posture of avoidance by school authorities.
2. When most students follow the usual schedule of schooling up to the age limit for compulsory school attendance, a lower eventual drop out rate seems likely—but the focus of school problems then shifts from elementary to the intermediate or advanced secondary school levels, where delays occur nonetheless, and the attendant difficulties frequently mean a prolonged and probably unpleasant school experience. In this case, the factors influencing the delay and eventual drop out are illustrated by New York City and the near-by metropolitan areas in northern New Jersey, where Puerto Ricans have gained a certain minimal

power base by reason of their numbers and proportional representation in the total population. But this condition, also true of Spanish origin persons in Los Angeles and San Francisco, does not necessarily mean instant educational success. Other factors such as prevalent poverty; the high cost of living; double discrimination against women (who are increasingly responsible for one-parent households); limited investments in the school system, and a mainly proletarian social identity among parents—all contribute to an environment favoring the drop out, or at least a slackening of high school completion into the young adulthood years, when marriage, family responsibilities and (up to recently) obligatory military service affect the average person's career.

Some of the social factors identified as influences on school problems could be modified by short-term changes in organization, but others would require redirection in the social structure that has ascribed to Puerto Ricans a minority and dependent role in the internal colonial system. Unfortunately, the limited nature of the data available from the Census files does not enable the authors to reach a more detailed or qualitative evaluation.

Much has been said, however, about the key variable, or early delays in schooling. As a final comment we wish to note that even if all the Puerto Rican children proceeded on time through the elementary and secondary school system, quite likely the drop out and other problems would still occur to some extent, since all of the variables examined were in one or another way symptomatic of an underlying human disparity between the Puerto Rican communities and the majority social system—a social mismatching that can be remedied only by thorough going change. This serves to warn us about grasping at a quick but superficial solution to a complex and profound set of difficulties.

Notes

1. Except where noted, figures cited in this section were drawn from U.S. Bureau of the Census, Census of Population: 1970. *Subject Reports*, Final Report PC(2)–1E Puerto Ricans in the United States, and the corresponding subject reports for 1950 and 1960.
2. For example, see Philip M. Blair, "Job Discrimination and Education: Rates of Return to Education of Mexican-Americans and Euro-Americans in Santa Clara County, California," in Martin Carnoy, ed., *Schooling in a Corporate Society*. New York: McKay 1972: 80-99.
3. Among other sources, Eduardo Seda Bonilla, "Cultural Pluralism and the Education of Puerto Rican Youth," *Phi Delta Kappan*, 53,5 (January 1972) and Isidro Lucas, "Puerto Rican Dropouts in Chicago: Numbers and Motivation," Final Report to the U.S. Office of Education, Department of Health, Education and Welfare, Washington D.C. 1971.
4. Victor G. Alicea and Julie Mathis, "Determinants of Educational Attainment Among Puerto Rican Youth in the United States," Universidad Boricua, Washington D.C. 1975.
5. Estimates drawn from tabulations of the 1970 Census Public Use Sample, 1:1000 County Group File. Mexican Americans were persons of Spanish surname and Mexican birth or parentage, or "native of native" parentage–data available only for Arizona, California, Colorado, New Mexico and Texas. Concerning the educational situation of Puerto Ricans relative to other minority groups, similar conclusions were reached in a report issued by the Department of Health, Education and Welfare, Office of Special Concerns, *A Study of Selected Socio-Economic Characteristics of Ethnic Minorities Based on the 1970 Census*. Vol. I: Americans of Spanish Origin, HEW Publication No. (OS) 75-120, July 1974.
6. The Puerto Rican population of Miami and Washington D.C. had a larger than average proportion of adult persons, while schoolage Puerto Ricans in Honolulu were not likely to be enumerated in the 1970 Census, since the definition of Puerto Rican was limited to persons born in Puerto Rico or in the United States of parents born in Puerto Rico. Most Puerto Ricans living in Hawaii, especially children and adolescents, belong to the third or successive generations, since the displacement from Puerto Rico to Hawaii took place shortly after the American occupation of Puerto Rico in 1898.

7. Drop out rates calculated from school records tended to coincide with those calculated from the Census tapes: Isidro Lucas (footnote 3, above) estimated the Chicago drop out rate at 71.2 percent, virtually the same as the 71.0 percent found in this study. In New York City the Puerto Rican drop out rate has varied between 50 and 75 percent during recent years, and the rate found here was 54 percent.
8. The following percentages of delay and dropout for whites and blacks in the United States are from U.S. Bureau of the Census, Census of Population: 1970, *Subject Reports*, Final Report PC(2) – 5A, School Enrollment:

	whites	blacks
Percent delayed at age 15	2.2%	6.7%
Percent who have dropped out at ages 16-18	19.5%	25.5%

9. Fred N. Kerlinger and Elazar J. Pedhazur, *Multiple Regression in Behavioral Research*. New York: Holt, Rinehart & Winston, 1973: 282-283, 305-318.
10. Ben-Chieh Liu and others, *Quality of Life Indicators in the U.S. Metropolitan Areas, 1970*, (Summary). Kansas City, Mo.: Midwest Research Institute, 1975.